OCT 0 4 2004

5

10

15

20

25

30

#### CINERARIA PLANT NAMED 'SUNSENERABU'

BOTANICAL/COMMERCIAL CLASSIFICATION

Senecio cruentus x Senecio heritieri.

#### VARIETAL DENOMINATION

cv. 'Sunsenerabu'

#### BACKGROUND OF THE VARIETY

The present invention relates to a new and distinct variety of *Senecio* genus plant named 'Sunsenerabu'.
'Sunsenerabu' is a distinct and unique variety, which is a dome-shaped plant of height with abundant branching, light violet inflorescences, and a long blooming term.

There are many varieties of *Senecio cruentus* cultivated in the world, including varieties with inflorescences of a single color of white, pink, red, blue or violet. Some varieties have marginal variegation with off color parts.

The female parent used in the crossing of 'Sunsenerabu' is a clone of our own breeding line, Senecio cruentus, '8S-84e' (not patented in the United States), which is a compact, dome-shaped plant, 16 cm in height. The stems are thick, 8.0 mm in diameter, with no anthocyanin coloration. The leaf is in a serrated heart form with moderate yellow green coloration. The leaf size is medium, 12.0 cm long, and 12.5 cm wide. The inflorescence is single flowered and has white ray florets with white disc florets having no marginal variegation. '8S-84e' has some scent.

The pollen parent used in the crossing of 'Sunsenerabu' is our breeding line, Senecio heritieri (an unnamed plant; not patented or sold in the United States), which was first introduced from England. Senecio heritieri is a high, domeshaped plant, 26 cm in height with abundant branching. Stems are 5.1 mm in diameter, with no anthocyanin coloration. The leaf is in a serrated heart form and light yellowish green in coloration. The leaf size is small, 5.5 cm long and 6.3 cm

wide. The inflorescence is single flowered, having strong purple ray florets with vague white parts and strong reddish purple disk florets. Senecio heritieri has no scent.

## Progress

5

10

15

20

25

30

The controlled crossing of a plant of Senecio cruentus '8S-84e' and a plant of Senecio heritieri (unnamed) was conducted at Omori-cho, Yokaichi-shi, Shiga, Japan in February, 1999. Seedlings from this crossing have been grown since September, 1999. Four strains were selected in January 2000 in view of flower color and earliness of bloom. After multiplication by tissue culture, the botanical characteristics of the selected new strains were tested in pots starting in September 2000, using the parent varieties, 'Sunsenebu' (U.S. Plant Patent Number 12104, issued 25 September 2001), and 'Miss Yokohama' (not patented in the United States) for comparison.

One seedling was propagated by a cutting at Yokaich-shi, shiga-ken, Japan. The new variety reproduces true to type in successive generations of asexual reproduction. This new variety of *Senecio* plant was named 'Sunsenerabu' (*Senecio cruentus* x *Senecio heritieri*).

The parent plants, Senecio cruentus, '8S-84e', and Senecio heritieri (unnamed), are presently maintained at Shiga-ken, Japan.

In the following descriptions, the color-coding is in accordance with the Horticultural Colour Chart of the Royal Horticultural Society, London, England (R.H.S).

The botanical characteristics of the female parent plant Senecio cruentus, '8S-84e', used in the crossing of 'Sunsenerabu' are as follows.

#### Plant:

Growth habit - Dwarf compact Height - Approximately 16 cm

35

# Stem: Thickness - Approximately 8.0 mm Color - Moderate yellowish green (Near R.H.S. 139C) Anthocyanin coloration - Absent 5 Branching - Fair Pubescence - Sparse Length of third internode below flag leaf - Approximately 0.5 cm Leaf: 10 Whole shape - Heart form with a swollen basal part, which is notched where the basal part of the blade attaches to the petiole. Depth of concavity of leaf margin - Medium Type of convexity - Acute 15 Apex shape - Obtuse Base shape - Cordate Degree of Undulation - Fair Length - Approximately 12.0 cm Width - Approximately 12.5 cm 20 Diameter of petiole - Approximately 5.0 mm Length of petiole - Approximately 5.5 cm Color of upper surface - Moderate yellow green (Near R.H.S. 137C) Color of reverse surface - Grayish yellow green (Near 25 R.H.S. 138B) Anthocyanin coloration of reverse surface - Absent Pubescence of upper surface - Present Pubescence of reverse surface - Dense Color of pubescence of reverse surface - White 30 Flower (Single flowered): Shape of flower cluster - Flat Diameter of flower cluster - Approximately 20 cm Height of flower cluster - Approximately 8 cm Transected shape of corolla - Flat

Diameter of flower - Approximately 5.5 cm

Size of disk flower - Approximately 1.2 cm Color of petal - White (Near R.H.S. 155D) Marginal variegation - Absent Color of disk flower - White (Near R.H.S. 155D) Petal length - Approximately 2.1 cm 5 Petal width - Approximately 1.0 cm Shape of petal - Elliptical Lengthwise warp of petal - Flat Concavity of patal tip - Present Shape of petal tip - Rounded 10 Number of ray flower - Approximately 13 Number of disk flower - Approximately 105 Diameter of pedicel of the first flower - Approximately 1.6 mm 15 Length of pedicel of the first flower - Approximately 2.4 CM Number of flowers per a flower cluster - Approximately 75 Scent - Present Calyx: 20 Degree of concavity - Flat Degree of recurvature - Approximately 2.2 mm Color - Moderate yellow green (Near R.H.S. 139C) Anthocyanin coloration - Absent Pistil: 25 Color - Light yellow (Near R.H.S. 11B) Number - 1 Type - Style branches truncate (i.e., the top of the style is separated into two and the shape of the top is truncated) 30 Stamen: Color - Brilliant yellow (Near R.H.S. 12B) Type - 5 anthers are connate, with separated filaments Blooming period - January (Sowing in August) Hardiness: 35 Cold - Good

Rain - Good

Heat - Good

## Resistance:

Disease - Good

5 Insect - Good

The botanical characteristics of the male parent plant Senecio heritieri used in the crossing of 'Sunsenerabu' are as follows.

#### Plant:

10 Growth habit - Dwarf compact

Height - Approximately 26 cm

#### Stem:

Thickness - Approximately 5.1 mm

Color - Very pale green (Near R.H.S. 128D)

15 Anthocyanin coloration - Absent

Branching - Abundunt

Type of primary lateral shoot - Branch from every node

Pubescence - Dense

Length of third internode below flag leaf - Approximately

## 20 0.8 cm

## Leaf:

Whole shape - Heart form with a swollen basal part, which is notched where the basal part of the blade attaches to the petiole.

Depth of concavity of leaf margin - Medium

Type of convexity - Acute

Apex shape - Obtuse

Base shape - Cordate

Degree of Undulation - Weak

30 Length - Approximately 5.5 cm

Width - Approximately 6.3 cm

Diameter of petiole - Approximately 4.2 mm

Length of petiole - Approximately 7.5 cm

Color of upper surface - Light yellowish green (near

35 R.H.S. 136D)

Color of reverse surface - Very pale green (near R.H.S.128D) Anthocyanin coloration of reverse surface - Absent Pubescence of upper surface - Dense 5 Pubescence of reverse surface - Dense Color of pubescence of reverse surface - White Flower (Single flowered): Shape of flower cluster - Uneven Diameter of flower cluster - Approximately 18 cm 10 Height of flower cluster - Approximately 15 cm Transected shape of corolla - Flat Diameter of flower - Approximately 4.8 cm Size of disk flower - Approximately 0.9 cm Color of petal - Strong purple (near R.H.S.81B) 15 Marginal variegation - Present Diameter of off color part - Approximately 1.3 cm Border of marginal variegation - Vague Color of disk flower - Strong reddish purple (Near R.H.S. No.72A) 20 Petal length - Approximately 2.2 cm Petal width - Approximately 0.4 cm Shape of petal - Rectangular Lengthwise warp of petal - Flat Concavity of patal tip - Present 25 Shape of petal tip - Acute Number of ray flower - Approximately 13 Number of disk flower - Approximately 110 Diameter of pedicel of the first flower - Approximately 1.2 mm 30 Length of pedicel of the first flower - Approximately 2.5 cm Number of flowers per flower cluster - Approximately 35 Scent - Absent Calyx: 35 Degree of concavity - Flat

Degree of recurvature - Approximately 3.1 mm Color - Very pale green (Near R.H.S. 128D) Anthocyanin coloration - Present Pistil:

Color - Strong reddish purple (Near R.H.S. 72A)

Number - 1

Type - Style branches truncate (i.e., the top of the style is separated into two and the shape of the top is truncated)

10 Stamen:

5

Color - Strong reddish purple (Near R.H.S. 72A)

Type - 5 anthers are connate, with separated filaments Blooming period - End of January (Sowing in August)
Hardiness:

nardiness.

15 Cold - Good

Rain - Good

Heat - Good

Resistance:

Disease - Good

20 Insect - Good

The botanical characteristics of a similar variety 'Sunsenebu' (Senecio cruentus x Senecio heritieri) which was patented in the United States, used for examination as a comparison variety are as follows.

25 Plant:

30

Growth habit - Semi- erect

Height - Approximately 33 cm

Stem:

Thickness - Approximately 4.5 mm

Color - Very pale green (Near R.H.S. 147C)

Anthocyanin coloration - Present unevenly

Degree of anthocyanin coloration - Light

Branching - Abundant, i.e., approximately 9 to 11 branches

35 Type of primary lateral shoot - Branch from every node

Pubescence - Sparse

Length of third internode below flag leaf - approximately 1.4 cm

Leaf:

Whole shape - Heart form with a swollen basal part, which is notched where the leaf attaches to the petiole.

Depth of concavity of leaf margin - Approximately 7mm on average.

Type of convexity - Acute

10 Apex shape - Acute

Base shape - Cordate

Degree of Undulation - Weak

Length - Approximately 6.7 cm

Width - Approximately 8.0 cm

Diameter of petiole - Approximately 3.1 mm

Length of petiole - Approximately 7.4 cm

Color of upper surface - Moderate yellow green (Near R.H.S. 137C)

Color of reverse surface - Moderate yellow green (Near

20 R.H.S. 138C)

25

Anthocyanin coloration of reverse surface - Present

Degree of antocyanin coloration - Light

Pubescence of upper surface - Dense

Pubescence of reverse surface - Dense

Color of pubescence of reverse surface - White Flower (Single flowered):

Shape of flower cluster - Uneven

Diameter of flower cluster - Approximately 36 cm

Height of flower cluster - Approximately 18 cm

30 Transected shape of corolla - Flat

Diameter of flower - Approximately 7.7 cm

Size of disk flower - Approximately 1.3 cm

Color of petal - Vivid violet (Near R.H.S. 89C)

Marginal variegation - Absent

35 Color of disk flower - Deep violet (Near R.H.S. 93A)

35

Resistance:

Petal length - Approximately 3.2 cm Petal width - Approximately 0.8 cm Shape of petal - Rectangular Lengthwise warp of petal - Flat Concavity of patal tip - Present 5 Shape of petal tip - Acute Number of ray flower - Approximately 13-15 Number of disk flower - Approximately 135 Diameter of pedicel of the first flower - Approximately 10 1.0 mm Length of pedicel of the first flower - Approximately 5.5 cm Number of flowers per a flower cluster - Approximately 65 Scent - Present 15 Calyx: Degree of concavity - Moderate Degree of recurvature - Approximately 1.0 mm Color - Very pale green (Near R.H.S. 130D) Anthocyanin coloration - Present 20 Pistil: Color - Deep violet (Near R.H.S. 93A) Number - 1 Type - Style branches truncate (i.e., the top of the style is separated into two and the shape of the top is 25 truncated) Stamen: Color - Deep violet (Near R.H.S. 93A) Type - 5 anthers are connate, with separated filaments Blooming period - Start at the beginning of December 30 (cutting in July) Hardiness: Cold - Good Rain - Good Heat - Good

Disease - Good

Insect - Good

The botanical characteristics of a similar variety 'Miss Yokohama', used for examination as a comparison variety are as follows.

#### Plant:

5

20

30

Growth habit - Dwarf compact

Height - Approximately 19 cm

#### Stem:

10 Thickness - Approximately 5.4 mm

Color - Moderate yellow green (Near R.H.S. 139C)

Anthocyanin coloration - Present

Degree of anthocyanin coloration - Medium

Branching - Fair

15 Pubescence - Dense

Length of third internode below flag leaf - Approximately 0.5 cm

#### Leaf:

Whole shape - Heart form with a swollen basal part, which is notched where the basal part of the leaf attaches to the petiole.

Depth of concavity of leaf margin - Medium

Type of convexity - Acute

Size of wing (swollen basal part) - Large

25 Apex shape - Obtuse

Base shape - Cordate

Degree of Undulation - Weak

Length - Approximately 17.5 cm

Width - Approximately 13.0 cm

Diameter of petiole - Approximately 5.2 mm

Length of petiole - Approximately 7.7 cm

Color of upper surface - Moderate yellow green (Near R.H.S. 137C)

Color of reverse surface - Moderate yellow green (Near

35 R.H.S. 138C)

	Anthocyanin coloration of reverse surface - Present
	Degree of anthocyanin coloration - Medium
	Pubescence of upper surface - Dense
	Pubescence of reverse surface - Dense
5	Color of pubescence of reverse surface - White
	Flower (Single flowered):
	Shape of flower cluster - Rounded
	Diameter of flower cluster - Approximately 23 cm
	Height of flower cluster - Approximately 17 cm
10	Transected shape of corolla - Flat
	Diameter of flower - Approximately 4.2 cm
	Size of disk flower - Approximately 1.1 cm
	Color of petal - Vivid violet (Near R.H.S. 96A)
	Marginal variegation - Present
15	Diameter of off color part - Approximately 2.5cm
	Border of marginal variegation - Fairy clear
	Color of disk flower - Deep violet (Near R.H.S. 93A)
	Petal length - Approximately 1.6 cm
	Petal width - Approximately 0.8 cm
20	Shape of petal - Generally rectangular
	Lengthwise warp of petal - Convex
	Concavity of patal tip - Present
	Shape of petal tip - Rounded
	Number of ray flower - Approximately 13
25	Number of disk flower - Approximately 86
	Diameter of pedicel of the first flower - Approximately
	1.7 mm
	Length of pedicel of the first flower - Approximately 2.
	cm
30	Number of flowers per a flower cluster - Approximately 9
	Scent - Present
	Calyx:
	Degree of concavity - Flat
	Degree of recurvature - Approximately 1.2 mm
35	Color - Very pale green (Near R.H.S. 130D)

Anthocyanin coloration - Absent Pistil:

Color - Deep violet (Near R.H.S. 93A)

Number - 1

5 Type - Style branches truncate (i.e., the top of the style is separated into two and the shape of the top is truncated)

Stamen:

Color - Deep violet (Near R.H.S. 93A)

10 Type - 5 anthers are connate, with separated filaments Blooming period - January (Sowing in August)

Hardiness:

Cold - Good

Rain - Good

15 Heat - Good

Resistance:

25

30

Disease - Good

Insect - Good

## SUMMARY OF THE VARIETY

'Sunsenerabu' is a dome-shaped plant of height (average height approximately 39.5 cm in the blooming period). There is a branch from every node and branching is abundant, i.e., approximately 9 to 11 branches. The stem is approximately 4.9 mm in diameter with few pubescences.

The leaves are small, approximately 7.6 cm long, approximately 9.2 cm wide. The leaves are shaped in a serrated heart form with a swollen basal part, which is notched where the basal part of the blade attaches to the petiole. The leaf color is strong yellow green, with no anthocyanin coloration on the reverse side. Pubescence on upper side of leaf is sparse and pubescence on the reverse side is dense. The petiole is approximately 9.2 cm long and approximately 3.2 mm in diameter.

The new variety has large inflorescence clusters, which

5

10

15

20

25

30

35

are high and flat in shape (i.e., the locations of the individual inflorescences forming the cluster are flat). An inflorescence cluster means a gathering of heads in a plant of the new variety. A head is an inflorescence consisting of disc florets and a plurality of ray florets. inflorescence is single flowered with marginal variegation, which has obscure border. The corolla has a flat transected shape (i.e., when the corolla opens, ray florets are flat when viewed from the side). The inflorescence is approximately 7.4 cm in diameter, while the disc floret is approximately 1.3 cm in diameter. The ray floret is approximately 3.0 cm long and approximately 0.8 cm wide. The color of the ray floret is light violet (near R.H.S. 91A), while the color of the disc florets are violet (near R.H.S. 90B). One inflorescence has approximately 13 ray florets and approximately 149 disc florets. A ray floret has a pistil, but no stamen. A disc floret is tubular and has a pistil and a stamen formed by 5 connate anthers with separated filaments. Approximately 180 inflorescences are in a inflorescence cluster. The degree of recurvature of calyx is approximately 2.0 mm. The calyx is flat and has no anthocyanin coloration. Pedicel is approximately 3.5 cm long and approximately 1.3 mm in diameter. The inflorescences have some scent.

Blooming period is medium and blooming term is long. After cutting in July, inflorescences start to bloom at the end of the January in Omori-cho, Yokaichi-shi, Shiga-ken, Japan. The blooming continues from January to May, if under appropriate control. Around a temperature of 15°C, the individual bloom lasts two weeks. The inflorescence buds grow one after another from the axil. The inflorescence is not self-cleaning because ray florets remain attached in a wilted and dry state as the inflorescence fully matures.

The new variety has moderate cold hardiness and resistance to heat. The new variety does not die at around  $0^{\circ}$ C, but when frost occurs the cells can be necrosed resulting

5

10

15

20

25

30

35

in the death of the plant. Usually, Senecio cruentus has a tendency of slightly reduced growth in a hot season, whereas the new variety has no problem in growing in the hot season.

The fertility of the new variety is low. Generally, Senecio genus plants have high fertility (i.e., bear many seeds per flower). In contrast, 'Sunsenerabu' bears no seed or very few seeds per inflorescence. When no seed is formed, there is a part corresponding to a seed coat, which remains in an immature state, i.e., without embryo and endosperm inside the immature seed coat.

The new variety, 'Sunsenerabu', differs from similar varieties, 'Sunsenebu' and 'Miss Yokohama', of the *Senecio* genus and from parent varieties *Senecio heritieri* (unnamed) and '8S-84e' in the following points.

- 1. 'Sunsenerabu' is a high type plant, approximately 39.5 cm in height. 'Sunsenebu' is a high type plant, approximately 33 cm in height. 'Miss Yokohama' is a compact type plant, approximately 19 cm in height. The pollen parent Senecio heritieri is a semi-compact type plant, approximately 26 cm in height and female plant '8S-84e' is a compact type plant, approximately 16 cm in height.
- 2. The inflorescence of 'Sunsenerabu' has light violet ray florets, strong violet disc florets and obscure marginal variegation. 'Sunsenebu' has vivid violet ray florets, deep violet disc florets and no marginal variegation. 'Miss Yokohama' has vivid violet ray florets, vivid violet disk florets and no marginal variegation. The female parent '8S-84e' has white ray florets, white disc florets and no marginal variegation. The pollen parent Senecio heritieri (unnamed) has strong purple ray florets, strong reddish purple disk florets and white marginal part.
- 3. The petiole length of 'Sunsenerabu' is longer than that of 'Sunsenebu' or 'Miss Yokohama'.
- 4. 'Sunsenerabu' has less pubescence of stems than that of 'Miss Yokohama'.

- 5. The blooming term of 'Sunsenerabu' is longer than that of 'Miss Yokohama'.
- 6. The fertility of 'Sunsenerabu' is lower than that of 'Miss Yokohama'.

The plant height and flower color are most distinctive characteristics of this new variety, 'Sunsenerabu'.

# BRIEF DESCRIPTION OF THE DRAWING

Fig.1 is a photograph giving a partial view of the new variety of *Senecio* genus plant named 'Sunsenerabu' planted in a pot.

Fig. 2 is a photograph of inflorescences of the new variety of *Senecio* genus plant named 'Sunsenerabu'.

# DESCRIPTION OF THE NEW VARIETY

The botanical characteristics of the new and distinct variety of *Senecio* plant named 'Sunsenerabu' are set forth hereafter. The plants were observed during January 2002 at Yokaichi-shi, Shiga-ken, Japan, planted in 15 cm diameter pots, at an age of approximately 6 months. Plant:

20 Growth habit - Semi-dwarf erect

Height - Approximately 39.5 cm

Spread - Approximately 45.0 cm

Main stem length - Approximately 38.0 cm

Lateral branches length - Approximately 20 cm

25 Stem:

5

10

15

Thickness - Approximately 4.9 mm

Color - Light yellow green (near R.H.S. 144D)

Anthocyanin coloration - Absent

Branching - Abundant, i.e., approximately 9 to 11

30 branches

Type of primary lateral shoot - Branch from every node Pubescence - Sparse

Internode length at the middle of main stem -

Approximately 2.1 cm Leaf:

Whole shape - Heart form with a swollen basal part, which is notched where the basal part of the blade attaches to the petiole.

Depth of concavity of leaf margin - The maximum depth of concavity measured from the average convexity peak height is approximately 5 mm.

Type of convexity - Acute

10 Apex shape - Acute

Base shape - Cordate

Leaf margin - Palmately lobed, crenate and weakly undulated

Length - Approximately 7.6 cm

15 Width - Approximately 9.2 cm

Diameter of petiole - Approximately 3.2 mm

Length of petiole - Approximately 9.2 cm

Color of petiole - Near R.H.S. 144D

Color of upper surface - Strong yellow green (near

20 R.H.S.144A)

25

5

Color of reverse surface - Moderate yellow green (near R.H.S. 138C)

Anthocyanin coloration of reverse surface - Absent

Pubescence of upper surface - Sparse

Pubescence of reverse surface - Dense

Venation - Pattern Palmate; color near R.H.S. 136D

Color of pubescence of reverse surface - White

Stipules - None

Inflorescene (Single flowered):

30 Shape of inflorescence cluster - Flat

Diameter of inflorescence cluster - Approximately 45 cm

Height of inflorescence cluster - Approximately 17 cm

Transected shape of corolla - Flat

Diameter of inflorescence - Approximately 7.4 cm

35 Size of disc floret - Approximately 1.3 cm

Color of ray floret (upper surface) - Near R.H.S. 91A Color of ray floret (lower surface) - Near R.H.S. 91D Marginal variegation - Present Size of marginal variegation - Approximately 1.7 cm 5 Border of marginal variegation - Obscure Color of disc floret - Strong violet (near R.H.S.90B) Ray floret length - Approximately 3.0 cm Ray floret width - Approximately 0.8 cm Shape of pay floret - Rectangular Lengthwise warp of pray floret - Flat 10 Concavity of tip - Present Shape of ray floret tip - Acute Number of ray flower - Approximately 13 Number of disc floret - Approximately 149 Diameter of pedicel of the first inflorescence - 1.3 mm 15 Length of pedicel of the first inflorescence -Approximately 3.5 cm Pedicel color - Near R.H.S. 144D Number of flowers per a inflorescence cluster -20 Approximately 180 Ray floret margin - Entire Ray floret base shape - Obtuse Ray floret texture - Smooth, velvety Scent - Present 25 Calyx: Degree of concavity - Flat Degree of recurvature - Approximately 2.0 mm Color - Strong yellow green (near R.H.S. 143A) Anthocyanin coloration - Absent 30 Pistil: Color - Vivid purple (near R.H.S. 87A) Number - 1 Type - Style branches truncate (i.e., the top of the style is separated into two and the shape of the top is truncated) 35

#### Stamen:

5

15

30

35

Color - Dark greenish yellow (near R.H.S. 152D)

Type - 5 anthers are connate, with separated filaments

Amount of pollen - Scarce

Pollen color - Near R.H.S. 21A

Time to produce - Approximately 6 months (cutting in

July, flower in the next January, in Japan

Blooming period - Start at the end of January (cutting in July)

Number of inflorescence per lateral stem - Approximately
5

Flowering time - From January to early May

Bud

Hardiness - Susceptible to damage under 0°C

Diameter - Approximately 6 cm

Length - Approximately 4 cm

Shape - Globose

Surface - Pubescent

Color - Near R.H.S. 144D

20 Lastingness of an individual bloom on the plant - approximately 10 days

#### Hardiness:

Cold - Good

Rain - Good

25 Heat - Good

#### Resistance:

Disease - Good

Insect - Good

The new variety and *Senecio cruentus* have similar resistance to powdery mildew, leaf spot, aphid, whitefly, and thrips. The new variety, 'Sunsenerabu', is a tall type plant and most suitable for flower potting.

This new and distinct variety of *Senecio* genus plant named 'Sunsenerabu' was asexually reproduced by cutting at Omori-cho, Yokaichi-shi, Shiga-ken, Japan and the homogeneity

and stability thereof were confirmed.